WHAT IS CLAIMED IS:

1. A high power amplifier comprising:

a first balun propagating a half of an input signal to an in-phase output terminal, and also propagating a fourth of said input signal to first and second opposite-phase output terminals, said signal propagated to said first and second opposite-phase output terminals lagging 180 degrees behind said signal propagated to said in-phase output terminal;

first and second power amplifier circuits connected to said first and second opposite-phase output terminals of said first balun and having the same characteristics;

a third power amplifier circuit connected to said in-phase output terminal of said first balun and having output power substantially twice as much as the output power of said first or second power amplifier circuit; and

a second balun having first and second opposite-phase input terminals for receiving the outputs of said first and second power amplifier circuits, having an in-phase input terminal for receiving the output of said third power amplifier circuit, combining said outputs of said first, second and third power amplifier circuits, and propagating combined output.

2. A high power amplifier in accordance with claim 1, wherein each of said first and second baluns comprises:

at least two stacked dielectric plates, i. e., first and

second dielectric plates, a quarter-wavelength main line 218 formed of a conductor pattern between said first dielectric plate and said second dielectric plate, a first quarter-wavelength coupling line 219 formed of a conductor pattern on said first dielectric plate on the opposite side of said main line, and a second quarter-wavelength coupling line 220 formed of a conductor pattern on said second dielectric plate on the opposite side of said main line,

wherein said first and second coupling lines 219, 220 are formed so as to be electromagnetically coupled with said main line 218, and

one end of said main line is used as a signal input terminal, the ends of said first and second coupling lines corresponding to said input terminal of said main line are grounded, and the other end of said main line is used as an in-phase output terminal, the other end of said first coupling line is used as a first opposite-phase output terminal, and the other end of said second coupling line is used as a second opposite-phase output terminal.

3. A high power amplifier comprising a power splitter circuit for splitting an input signal into at least four outputs, said high power amplifier circuits in accordance with claim 1 connected to the output terminals of said power splitter circuit, and a power combiner circuit having input terminals connected to the outputs of said high power

amplifier circuits and combining said outputs of said high power amplifier circuits.

4. A high power amplifier in accordance with claim 3, wherein said power splitter circuit and said first baluns and/or said second baluns and said power combiner circuit are formed on the same dielectric multilayer board.

5. A power splitter or combiner circuit comprising:

at least two stacked dielectric plates, i. e., first and second dielectric plates;

a shield grounding conductor formed between said first and second dielectric plates;

a transmission line formed of a conductor pattern on said first dielectric plate on the opposite side of said shield grounding conductor, having an input terminal 406 on an end thereof, and having a first through hole 415 on the other end thereof;

first and second quarter-wavelength lines 407, 408, ends thereof commonly connected to said transmission line, and the other ends 407a, 408a thereof provided with first and second output lines 429a, 429b, respectively;

first and second absorption resistances 411, 412 connected to said other ends 407a, 408a of said first and second quarter-wavelength lines, respectively;

a common terminal 416-a connected to the other ends of said first and second absorption resistances, and provided

with a second through hole 417;

third and fourth quarter-wavelength lines 409, 410 formed parallel to each other, each formed of a conductor pattern on said second dielectric plate on the opposite side of said shield grounding conductor, and ends thereof commonly connected electrically via said first through hole 415;

third and fourth output lines 430a, 430b connected to the other ends 409a, 410a of said third and fourth quarter-wavelength lines 409a, 410a, respectively;

third and fourth isolation resisitors 413, 414 connected to said other ends 409a, 410a of said third and fourth quarter-wavelength lines, respectively; and

a common terminal 416-b connected to the other ends of said third and fourth absorption resistances, and having a through hole connected to said second through hole 417.

6. A power splitter or combiner circuit in accordance with claim 5, wherein all of said lines and resistors formed of conductor patterns are not disposed on said first dielectric plate on the opposite side of said shield grounding conductor, but some of them are disposed on said first dielectric plate, and the rest are disposed on a third dielectric plate stacked to said first dielectric plate via another shield grounding conductor.

7. A balun comprising:

a multilayer formed of dielectric layers and conductor

pattern layers stacked alternately;

a main line disposed on said conductor pattern layer;

a plurality of coupling lines facing a part of said main line, disposed on said conductor pattern layer different from said conductor pattern layer on which said part of said main line is disposed, so as to electromagnetically coupled with said part of said main line, and grounded electrically;

an input line disposed on one of said conductor pattern layers; and

output line pairs, each pair connected across both ends of each of said coupling lines,

wherein one end of said main line is connected to said input line, the other end thereof is electrically grounded, the power of a signal input to said input line is split and propagated to each of said output terminal pairs via each of said coupling lines, and a signal propagated from one output line of said output line pair is 180 degrees out of phase with the other signal propagated from the other output line.

8. A balun in accordance with claim 7, wherein all of said coupling lines are disposed on the same conductor pattern layer.

9. A balun in accordance with claim 7, wherein at least one of said coupling lines is disposed on said conductor pattern layer different from said conductor pattern layer on which the other coupling line is disposed.

10. A balun in accordance with claim 7, wherein said main line is disposed across said plural conductor pattern layers.

11. A balun in accordance with claim 8, wherein said main line is disposed across said plural conductor pattern layers.

12. A balun in accordance with claim 9, wherein said main line is disposed across said plural conductor pattern layers.

13. A balun in accordance with claim 10, wherein a part of said main line and said coupling line other than said coupling line facing said part of said main line are disposed on said same conductor pattern layer.

14. A balun in accordance with claim 11, wherein a part of said main line and said coupling line other than said coupling line facing said part of said main line are disposed on said same conductor pattern layer.

15. A balun in accordance with claim 12, wherein a part of said main line and said coupling line other than said coupling line facing said part of said main line are disposed on said same conductor pattern layer.

16. A balun in accordance with claim 10, wherein said main line disposed on said same conductor pattern layer comprises a plurality of portions not directly connected to one another on said conductor pattern layer.

17. A balun in accordance with claim 13, wherein said main line disposed on said same conductor pattern layer comprises a plurality of portions not directly connected to

one another on said conductor pattern layer.

18. A balun in accordance with claim 11, wherein said main line disposed on said same conductor pattern layer comprises a plurality of portions not directly connected to one another on said conductor pattern layer.

19. A balun in accordance with claim 12, wherein said main line disposed on said same conductor pattern layer comprises a plurality of portions not directly connected to one another on said conductor pattern layer.

20. A balun in accordance with claim 10, wherein at least two of said plural conductor pattern layers across which said main line is disposed are disposed to sandwich said other conductor pattern layer, and said other conductor pattern layer has a shield conductor on a part or the entire surface thereof which prevents increase in the coupling degree of said coupling line with the part of said main line other than said part of said line facing said coupling line and/or said other coupling line.

21. A balun in accordance with claim 13, wherein at least two of said plural conductor pattern layers across which said main line is disposed are disposed to sandwich said other conductor pattern layer, and said other conductor pattern layer has a shield conductor on a part or the entire surface thereof which prevents increase in the coupling degree of said coupling line with the part of said main line other than said

part of said line facing said coupling line and/or said other coupling line.

22. A balun in accordance with claim 16, wherein at least two of said plural conductor pattern layers across which said main line is disposed are disposed to sandwich said other conductor pattern layer, and said other conductor pattern layer has a shield conductor on a part or the entire surface thereof which prevents increase in the coupling degree of said coupling line with the part of said main line other than said part of said line facing said coupling line and/or said other coupling line.